General

Guideline Title

Peritoneal dialysis. Peritoneal dialysis in the treatment of stage 5 chronic kidney disease.

Bibliographic Source(s)

Centre for Clinical Practice. Peritoneal dialysis. Peritoneal dialysis in the treatment of stage 5 chronic kidney disease. London (UK): National Institute for Health and Clinical Excellence (NICE); 2011 Jul. 24 p. (Clinical guideline; no. 125).

Guideline Status

This is the current release of the guideline.

Recommendations

Major Recommendations

Note from the National Guideline Clearinghouse (NGC): This guideline was developed by the Centre for Clinical Practice at the National Institute for Health and Clinical Excellence (NICE).

Information and Support

Offer patients with stage 5 chronic kidney disease (CKD) and their families and carers information and support in line with Chronic kidney disease. Early identification and management of chronic kidney disease in adults in primary and secondary care (NICE clinical guideline 73).

Offer patients and their families and carers oral and written information about pre-emptive transplant, dialysis, and conservative care to allow them to make informed decisions about their treatment.

To enable patients to make informed decisions, offer balanced and accurate information about all dialysis options. The information should include:

- A description of treatment modalities (assisted automated peritoneal dialysis [aAPD], automated peritoneal dialysis [APD], continuous ambulatory peritoneal dialysis [CAPD], and home or in-centre haemodialysis) including:
  - Efficacy
  - Risks
  - Potential benefits, based on the person's prognosis
  - Potential side effects and their severity
  - Changing the modality of dialysis and the possible consequences (that is, the impact on the person's life or how this may affect future treatment or outcomes)

- A discussion about how treatment fits into people's lives, including:
  - The patient's and/or carer's ability to carry out and adjust the treatment themselves
  - Integration with daily activities such as work, school, hobbies, family commitments, and travel for work or leisure
  - Opportunities to maintain social interaction
  - The impact on body image
  - How the dialysis access point on the body may restrict physical activity
  - If their home will need to be modified to accommodate treatment
  - Distance and time spent travelling for treatment
  - Flexibility of treatment regimen
  - Any additional support or services that might be needed from others

Explain to patients and check they understand that CKD is a lifelong disease, and that during the course of renal replacement therapy they are likely to need to switch between treatment modalities depending on clinical or personal circumstances.

When providing information about treatment options, healthcare professionals should discuss and take into account any information the patient has obtained from other patients, families and carers, and all other sources, and how this information has influenced their decision.

Make sure that healthcare professionals offering information have specialist knowledge about CKD and the necessary skills to support decision-making. This may include training in:

- Using decision aids to help patients make decisions about their care and treatment
- Presenting information to children in a form suitable for their developmental stage, such as play therapies

Trained healthcare professionals (see previous recommendation) should be available to discuss the information provided both before and after the start of dialysis.

Offer all patients who have presented late, or started dialysis treatment urgently, an enhanced programme of information, at an appropriate time, that offers the same information and choices as those who present at an earlier stage of chronic kidney disease.

Choosing Dialysis

Offer all people with stage 5 CKD a choice of peritoneal dialysis or haemodialysis, if appropriate, but consider peritoneal dialysis as the first choice of treatment modality for:

- Children 2 years old or younger
- People with residual renal function
- Adults without significant associated comorbidities

When discussing choice of treatment modalities, healthcare professionals should take into account that people's priorities are not necessarily the same as their own clinical priorities.

Before starting peritoneal dialysis, offer all patients a choice, if appropriate, between CAPD and APD (or aAPD if necessary).

For children for whom peritoneal dialysis is appropriate, offer APD in preference to CAPD if they are on a liquid diet, especially if they have low residual renal function.

Switching Treatment Modalities

Do not routinely switch patients on peritoneal dialysis to a different treatment modality in anticipation of potential future complications such as encapsulating peritoneal sclerosis. However, healthcare professionals should monitor risk factors such as loss of ultrafiltration and discuss with patients regularly the efficacy of all aspects of their treatment.

Consider switching treatment modality if the patient, their family, or carer asks.

When considering switching treatment modality, offer information on treatment options described in recommendations in the section 'Information and Support', above. This should also include how any decision to switch may affect future treatment options.

Switching between treatment modalities should be planned if possible.

Clinical Algorithm(s)

The original guideline document contains a clinical algorithm on peritoneal dialysis in the treatment of stage 5 chronic kidney disease.

Scope

Disease/Condition(s)

Chronic kidney disease

Guideline Category

Counseling

Evaluation

Management

Risk Assessment

Treatment

Clinical Specialty

Family Practice

Internal Medicine

Nephrology

Pediatrics

Intended Users

Advanced Practice Nurses

Allied Health Personnel

Health Care Providers

Nurses

Patients

Physician Assistants

Physicians

Guideline Objective(s)

To improve the care of people with stage 5 chronic kidney disease (CKD) who need and want to receive dialysis, by making evidence-based recommendations on the role of peritoneal dialysis

Target Population

People with stage 5 chronic kidney disease (CKD) who need and want to receive dialysis

Interventions and Practices Considered

1. Provision of information and support for patients their families and carers
    - Discussion of treatment modalities (assisted automated peritoneal dialysis [aAPD], automated peritoneal dialysis [APD], continuous ambulatory peritoneal dialysis [CAPD], and home or in-centre haemodialysis)
    - Risks and benefits of treatment modalities
2. Dialysis
    - Peritoneal dialysis (APD, aAPD or CAPD)
    - Haemodialysis (home or in-centre)
3. Switching treatment modalities

Major Outcomes Considered

- Health-related quality of life
- Patient involvement and satisfaction
- Mortality (where reported, including deaths in the first 3 months of treatment)
- Preservation of renal function
- Technique failure or switch
- Resource use and costs including hospitalisation
- Adverse events
- Adequacy rates
- Staff attitude and skills
- Nutritional status
- Anaemia

Methodology

Methods Used to Collect/Select the Evidence

Searches of Electronic Databases

Searches of Patient Registry Data

Description of Methods Used to Collect/Select the Evidence

Note from the National Guideline Clearinghouse (NGC): This guideline was developed by the Centre for Clinical Practice at the National Institute for Health and Clinical Excellence (NICE). See the "Availability of Companion Documents" field for the full version of this guidance.

The short clinical guideline process follows the standard process for identifying evidence (see Chapter 5 of 'The NICE guidelines manual 2009').

See Appendix A of the original guideline document for review protocol and inclusion and exclusion criteria.

Information and Support

A total of 6,183 articles were found by systematic searches, a further six systematic reviews were suggested by the Guideline Development Group (GDG) (four of which had not been identified in the searches and one further review was identified through background searching). Full text was ordered for 168 articles based on the title and abstract.

First Review Question

Thirteen papers met the eligibility criteria and described the experience of decision-making when starting dialysis. Although many studies reported

factors associated with the choice of dialysis, they were excluded because the focus was the experience of the patient, family, or healthcare professional as explored using qualitative methods. However, some surveys evaluating patient-centred factors associated with the choice of dialysis are included because the GDG considered that they contributed important information.

Second Review Question

Two papers evaluated the effectiveness of interventions to improve decision-making when starting dialysis. Three studies did not meet the eligibility criteria and were not considered further. Although the systematic reviews looked at interventions to improve decisions throughout the patient journey of chronic kidney disease (CKD), only those studies that focused on choosing dialysis were considered for this review.

Modalities of Dialysis: Haemodialysis and Peritoneal Dialysis

A total of 5,149 articles were found by systematic searches. Full text was ordered for 320 articles (comparing peritoneal dialysis with any other type of dialysis, including haemodialysis) based on the title and abstract. Only one primary study met the eligibility criteria and evaluated the effectiveness of peritoneal dialysis compared with haemodialysis for adults with stage 5 CKD. A Cochrane systematic review was found that compared peritoneal dialysis with haemodialysis and this included the one study identified in the GDG's reviews, so only the results from the primary study are presented. No randomised controlled trial (RCT) evidence was found for children with stage 5 CKD.

Because of the lack of RCT evidence, the GDG asked the technical team to search for publications from national renal registries that would provide further information on the outcomes agreed important for this guideline. Systematic searches for registry data reported in published articles found 1,672 articles. Full text was ordered for 261 articles based on the title and abstract. In addition, the GDG looked for annual reports for those not identified by the searches; this included the 2008 annual report of the North American Pediatric Renal Trials and Collaborative Studies. Of these publications, 53 papers met the eligibility criteria for registry publications; 42 evaluated the effectiveness of peritoneal dialysis or haemodialysis, either with comparative analyses or single intervention reports for adults and children. The GDG also re-checked studies identified for other questions (for example, switching) and included those that were relevant. Table 1 in the original guideline document summarises the included studies.

Of the 42 studies, 11 included children (31 were adults alone); 25 reported outcomes for both peritoneal dialysis and haemodialysis, with 14 on peritoneal dialysis alone and three on haemodialysis alone.

Health Economic Modelling

A search was made for any appropriate studies. Five studies were identified that were considered suitable. These are outlined in the Health Economic Appendix B of the original guideline document.

Modalities of Dialysis: Continuous Ambulatory Peritoneal Dialysis, Automated Peritoneal Dialysis, and Assisted Peritoneal Dialysis

A total of 5,149 articles were found by systematic searches. Full text was ordered for 320 articles (comparing peritoneal dialysis with any other modality of dialysis, including haemodialysis) based on the title and abstract. Only four papers from three studies met the eligibility criteria and evaluated the effectiveness of different types of peritoneal dialysis for stage 5 CKD. The same three studies were also included in a systematic review identified through the GDG's searches. No RCT evidence was found for children with stage 5 CKD.

Because of the lack of RCT evidence, the GDG asked the technical team to search for publications from national renal registries that would provide further information on the outcomes considered important for this guideline. A total of 1,672 articles were found by systematic searches focused on the retrieval of registry data reported in published articles. Full text was ordered for 261 articles based on the title and abstract. In addition, the GDG looked for annual reports for those not identified through the searches; this included the 2008 North American Pediatric Renal Trials and Collaborative Studies annual report. Of these publications, 53 papers met the eligibility criteria for registry publications; 11 evaluated the effectiveness of different types of peritoneal dialysis, either with comparative analyses or single intervention reports for adults and children. The GDG also re-checked the studies identified for other questions (for example, switching) and included those that were relevant. Of these 11 studies, four included children (seven were adults alone); eight reported outcomes for both automated peritoneal dialysis (APD) and continuous ambulatory peritoneal dialysis (CAPD), two for CAPD alone and one for APD alone. Table 6 in the original guideline document summarises the included studies.

Sequences of Treatment

A total of 1,669 articles were found by systematic searches. Full text papers were ordered for 50 articles (comparing sequences of treatment that include peritoneal dialysis) based on the title and abstract. Seven studies met the eligibility criteria and evaluated the effectiveness of treatment sequences that include peritoneal dialysis. Different sequences were compared in the published studies. Only one study included children.

As for the other reviews of dialysis in this guideline, because of the lack of RCT evidence, the GDG included publications from national renal registries that would provide further information on the outcomes considered important for this guideline. The GDG also re-checked the studies identified for other questions (for example, effectiveness of peritoneal dialysis) and included those that were relevant. Table 7 in the original guideline document shows a summary of the studies that were included.

Number of Source Documents

Not stated

Methods Used to Assess the Quality and Strength of the Evidence

Expert Consensus

Weighting According to a Rating Scheme (Scheme Given)

Rating Scheme for the Strength of the Evidence

Overall Quality of Outcome Evidence in Grading of Recommendations Assessment, Development and Evaluation

Level	Description
High	Further research is very unlikely to change confidence in the estimate of effect
Moderate	Further research is likely to have an important impact on confidence in the estimate of effect and may change the estimate
Low	Very likely to have an important impact on confidence in the estimate of effect and is likely to change the estimate
Very low	Any estimate of effect is very uncertain

Methods Used to Analyze the Evidence

Review of Published Meta-Analyses

Systematic Review with Evidence Tables

Description of the Methods Used to Analyze the Evidence

Note from the National Guideline Clearinghouse (NGC): This guideline was developed by the Centre for Clinical Practice at the National Institute for Health and Clinical Excellence (NICE). See the "Availability of Companion Documents" field for the full version of this guidance.

The short clinical guideline process follows the standard process for assessing and summarising the evidence (see Chapter 6 of 'The NICE guidelines manual 2009').

Grading of Recommendations Assessment, Development, and Evaluation (GRADE) assessment was adapted, and the following variables were considered: limitations, inconsistency, and indirectness. Imprecision was rated as not relevant throughout because it does not apply to the type of evidence considered in this question. The following principles were applied to assess quality: a systematic review of qualitative studies started as high, and a single qualitative study started as moderate, with downgrading as appropriate. For the GRADE assessment, registry studies were assessed as low-quality evidence, with downgrading as appropriate.

Only the evidence considered to be directly relevant is summarised in the GRADE tables in the original guideline document.

Methods Used to Formulate the Recommendations

Expert Consensus

Informal Consensus

Description of Methods Used to Formulate the Recommendations

Note from the National Guideline Clearinghouse (NGC): This guideline was developed by the Centre for Clinical Practice at the National Institute for Health and Clinical Excellence (NICE). See the "Availability of Companion Documents" field for the full version of this guidance.

Forming and Running the Short Clinical Guideline Development Group (GDG)

Each short clinical guideline is developed by a unique GDG consisting of 10–12 members, supported by the Short Clinical Guidelines Team. Each GDG has a Chair, healthcare professional members and a minimum of two patient and carer members. Co-opted expert advisers are recruited, as appropriate. A Clinical Adviser, who has specific content expertise and additional responsibilities, may also be appointed depending on the topic. Recruitment of the GDG Chair and members is carried out in accordance with NICE's policy.

The GDG makes its decisions using the best available evidence presented to it at GDG meetings by the Short Clinical Guidelines Team. The use of formal consensus methods within the GDG will be considered on a case-by-case basis.

Developing Review Questions

A short clinical guideline has a narrow scope and covers only part of a care pathway. It addresses a maximum of three subject areas covering clinical management. This will result in a small number of key clinical issues. These are broken down into a defined number of review questions — usually one or two per clinical management area. The exact number will be dictated by the size of the short clinical guideline remit and the amount of development time available.

Creating Guideline Recommendations

Explicit methods of linking the evidence to recommendations are used for short clinical guidelines if the topic is suitable. This involves using the Grading of Recommendations Assessment, Development and Evaluation (GRADE) approach.

Research recommendations are formulated for short clinical guidelines. Their number is dependent on the size of the short clinical guideline remit and the amount of development time available.

Writing the Guideline

There are usually three versions of short clinical guidelines:

- The full guideline – all the recommendations, details of how they were developed and summaries of the evidence they are based on.
- The quick reference guide – a summary of the recommendations for healthcare professionals.
- 'Understanding NICE guidance' – a summary for patients and carers

The full guideline is written by the Short Clinical Guidelines Team, following the principles in Chapters 9 and 10 of 'The guidelines manual' (see the "Availability of Companion Documents" field).

Rating Scheme for the Strength of the Recommendations

Not applicable

Cost Analysis

The cost effectiveness results presented in Appendix B of the full version of the original guideline indicate that increasing the use of peritoneal dialysis would be a cost effective and also cost saving policy for the National Health Service (NHS). However, the probabilistic sensitivity analysis indicates that there is still considerable uncertainty over the comparative clinical effectiveness of the two treatments. In addition, there are a number of limitations of this analysis that prevents its use in assessing the cost effectiveness of specific pathways and population groups.

Therefore, until further information becomes available peritoneal dialysis (PD) and haemodialysis (HD) should be allocated to those considered most likely to benefit. This means clinically and more importantly in terms of quality of life. This is because the main benefit of PD over HD is in terms of quality of life rather than a proven clinical benefit.

Finally the major issue affecting renal replacement therapy (RRT) in the next couple of years will be the use of home HD which may become more accessible to patients as the equipment becomes easier to use and less expensive. The potential quality of life improvements could be considerable.

See Appendix B of the full version of the original guideline document for additional details of the cost analysis.

Method of Guideline Validation

External Peer Review

Internal Peer Review

Description of Method of Guideline Validation

The guideline was validated through two consultations.

1. The first draft of the guideline (the full guideline, National Institute for Health and Clinical Excellence [NICE] guideline, and Quick Reference Guide) were consulted with stakeholders and comments were considered by the Guideline Development Group (GDG).
2. The final consultation draft of the full guideline, the NICE guideline and the Information for the Public were submitted to stakeholders for final comments.

The final draft was submitted to the Guideline Review Panel for review prior to publication.

Evidence Supporting the Recommendations

Type of Evidence Supporting the Recommendations

The guideline recommendations were evidence based if possible; if evidence was not available, informal consensus within the Guideline Development Group was used.

Benefits/Harms of Implementing the Guideline Recommendations

Potential Benefits

Appropriate use of dialysis in the treatment of stage 5 chronic kidney disease

Potential Harms

Adverse events associated with dialysis

Qualifying Statements

Qualifying Statements

- This guidance represents the view of the National Institute of Health and Clinical Excellence (NICE), which was arrived at after careful consideration of the evidence available. Healthcare professionals are expected to take it fully into account when exercising their clinical judgement. However, the guidance does not override the individual responsibility of healthcare professionals to make decisions appropriate to the circumstances of the individual patient, in consultation with the patient and/or guardian or carer, and informed by the summary of product characteristics of any drugs they are considering.
- Implementation of this guidance is the responsibility of local commissioners and/or providers. Commissioners and providers are reminded

that it is their responsibility to implement the guidance, in their local context, in light of their duties to avoid unlawful discrimination and to have regard to promoting equality of opportunity. Nothing in this guidance should be interpreted in a way that would be inconsistent with compliance with those duties.

Implementation of the Guideline

Description of Implementation Strategy

The National Institute for Health and Clinical Excellence (NICE) has developed tools to help organisations implement this guidance. These are available on the NICE Web site http://guidance.nice.org.uk/CG125 .

Implementation Tools

Clinical Algorithm

Foreign Language Translations

Patient Resources

Quick Reference Guides/Physician Guides

Resources

Slide Presentation

Staff Training/Competency Material

For information about availability, see the *Availability of Companion Documents* and *Patient Resources* fields below.

Institute of Medicine (IOM) National Healthcare Quality Report Categories

IOM Care Need

Getting Better

Living with Illness

IOM Domain

Effectiveness

Patient-centeredness

Identifying Information and Availability

Bibliographic Source(s)

Centre for Clinical Practice. Peritoneal dialysis. Peritoneal dialysis in the treatment of stage 5 chronic kidney disease. London (UK): National

Institute for Health and Clinical Excellence (NICE); 2011 Jul. 24 p. (Clinical guideline; no. 125).

Adaptation

Not applicable: The guideline was not adapted from another source.

Date Released

2011 Jul

Guideline Developer(s)

National Institute for Health and Care Excellence (NICE) - National Government Agency [Non-U.S.]

Source(s) of Funding

National Institute for Health and Clinical Excellence (NICE)

Guideline Committee

Guideline Development Group

Composition of Group That Authored the Guideline

Guideline Development Group Members: Lindsey Barker, Consultant Nephrologist and Medical Director, Royal Berkshire Hospital Foundation Trust, Reading; Hilary Bekker, Senior Lecturer in Behavioural Sciences, Leeds Institute of Health Sciences, School of Medicine, University of Leeds; David Bennett-Jones, Consultant, Renal Medicine, University Hospital Coventry and Warwickshire; Roy Connell, Clinical Nurse Specialist, Nottingham University Hospital; Robert Dunn, Patient and carer member, National Kidney Federation; Helen Hurst, Advanced Nurse Practitioner, Manchester Royal Infirmary; Lesley Lappin, Clinical Nurse Specialist/Community Dialysis Manager, Salford Royal Infirmary, Manchester; Damien Longson (*Chair*), Consultant Liaison Psychiatrist, Manchester Mental Health and Social Care Trust; Sue Perry, Deputy Head of Dietetic Services, Hull and East Yorkshire Hospitals; Lesley Rees, Consultant Paediatric Nephrologist, Great Ormond St Hospital for Children NHS Trust, London; Amanda Venters, Patient and carer member

Financial Disclosures/Conflicts of Interest

A full list of all declarations of interest made by this Guideline Development Group is available on the National Institute of Health and Clinical Excellence (NICE) website (www.nice.org.uk).

Guideline Status

This is the current release of the guideline.

Guideline Availability

Electronic copies: Available in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site .

Availability of Companion Documents

The following are available:

- Peritoneal dialysis. Peritoneal dialysis in the treatment of stage 5 chronic kidney disease. Quick reference guide. London (UK): National Institute for Health and Clinical Excellence (NICE); 2011 Jul. 6 p. (Clinical guideline; no. 125). Electronic copies: Available in Portable Document Format (PDF) from the National Institute for Health and Clinical Excellence (NICE) Web site .
- Peritoneal dialysis. Peritoneal dialysis in the treatment of stage 5 chronic kidney disease. Full guideline. London (UK): National Institute for Health and Clinical Excellence (NICE); 2011 Jul. 152 p. (Clinical guideline; no. 125). Electronic copies: Available in PDF from the NICE Web site .
- Peritoneal dialysis. Peritoneal dialysis in the treatment of stage 5 chronic kidney disease. Appendices. London (UK): National Institute for Health and Clinical Excellence (NICE); 2011 Jul. Various p. (Clinical guideline; no. 125). Electronic copies: Available in PDF from the NICE Web site .
- Kidney disease: peritoneal dialysis. Costing report. London (UK): National Institute for Health and Clinical Excellence (NICE); 2011 Jul. 25 p. (Clinical guideline; no. 125). Electronic copies: Available in PDF from the NICE Web site .
- Kidney disease: peritoneal dialysis. Costing template. London (UK): National Institute for Health and Clinical Excellence (NICE); 2012 Jan. (Clinical guideline; no. 125). Electronic copies: Available from the NICE Web site .
- Peritoneal dialysis. Clinical case scenarios for healthcare professionals who support people with stage 5 chronic kidney disease. London (UK): National Institute for Health and Clinical Excellence (NICE); 2011 Jul. 27 p. Electronic copies: Available in PDF from the NICE Web site .
- Peritoneal dialysis. Clinical case scenarios for healthcare professionals who support people with stage 5 chronic kidney disease. Slide set. London (UK): National Institute for Health and Clinical Excellence (NICE); 2011 Jul. 35 p. Electronic copies: Available from the NICE Web site .
- Peritoneal dialysis. Slide set. London (UK): National Institute for Health and Clinical Excellence (NICE); 2011 Jul. 24 p. Electronic copies: Available from the NICE Web site .
- Peritoneal dialysis. Baseline assessment tool. London (UK): National Institute for Health and Clinical Excellence (NICE); 2011. Electronic copies: Available from the NICE Web site .
- Providing patients who present late with information, support and choices. Podcast. Available from the NICE Web site .
- How to approach switching treatment modalities. Podcast. Available from the NICE Web site .
- The guidelines manual 2009. London (UK): National Institute for Health and Clinical Excellence (NICE); 2009 Jan. Electronic copies: Available in PDF from the NICE Archive Web site .

Patient Resources

The following is available:

- Peritoneal dialysis for people with kidney failure. Understanding NICE guidance. Information for people who use NHS services. London: National Institute for Health and Clinical Excellence (NICE); 2011 Jul. 12 p. Electronic copies: Available from the National Institute for Health and Clinical Excellence (NICE) Web site . Also available in Welsh from the NICE Web site .

Please note: This patient information is intended to provide health professionals with information to share with their patients to help them better understand their health and their diagnosed disorders. By providing access to this patient information, it is not the intention of NGC to provide specific medical advice for particular patients. Rather we urge patients and their representatives to review this material and then to consult with a licensed health professional for evaluation of treatment options suitable for them as well as for diagnosis and answers to their personal medical questions. This patient information has been derived and prepared from a guideline for health care professionals included on NGC by the authors or publishers of that original guideline. The patient information is not reviewed by NGC to establish whether or not it accurately reflects the original guideline's content.

NGC Status

This summary was completed by ECRI Institute on March 16, 2012.

The National Institute for Health and Clinical Excellence (NICE) has granted the National Guideline Clearinghouse (NGC) permission to include

summaries of their clinical guidelines with the intention of disseminating and facilitating the implementation of that guidance. NICE has not yet verified this content to confirm that it accurately reflects that original NICE guidance and therefore no guarantees are given by NICE in this regard. All NICE clinical guidelines are prepared in relation to the National Health Service in England and Wales. NICE has not been involved in the development or adaptation of NICE guidance for use in any other country. The full versions of all NICE guidance can be found at www.nice.org.uk .

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